

TRIOZA PENAI SP. N., A NEW CHILEAN JUMPING PLANT-LOUSE
(HEMIPTERA, PSYLLOIDEA) ON *PROUSTIA CUNEIFOLIA*
(ASTERACEAE)

Trioza penai sp. n., un nuevo psílido chileno (Hemiptera, Psylloidea) sobre
Proustia cuneifolia (Asteraceae)

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ABSTRACT

Trioza penai sp. n. from *Proustia cuneifolia* is described and illustrated based on material from Chile. Its relationships to the Peruvian *T. mutisiae* Tuthill and the *T. berberidis* group are briefly discussed and characters listed to separate it.

KEYWORDS: Hemiptera. Psylloidea. Taxonomy. Asteraceae. *Proustia*. Chile.

RESUMEN

Se describe y se ilustra *Trioza penai* sp. n., de material proveniente de Chile, encontrada sobre *Proustia cuneifolia*. Se discuten las relaciones y los caracteres que la diferencian con la especie peruana *T. mutisiae* Tuthill y del grupo *T. berberidis*.

INTRODUCTION

The sap-sucking jumping plant-lice are generally highly host specific with a preference for particular angiosperm orders and families (Burckhardt and Couturier, 1994). For instance, the Triozidae include a large number of species developing on Asteraceae in the Holarctic, Oriental and Neotropical Regions as well as in Australia and New Zealand (Gegechkori and Loginova, 1990; Hodkinson, 1986, 1988; Hodkinson and White, 1981; Tuthill, 1952; Tuthill and Taylor, 1955); so far there are no records from the Afrotropical Region (Hollis, 1984).

In Southern South America the Asteraceae feeding triozids have been assigned to three species groups based on the presence or absence of genal processes and the number of apical metatibial spurs (Tuthill, 1959, 1964; Burckhardt, 1988, 1994): 1. *Trioza baccharidis* group on *Baccharis* (Astereae) and *Senecio* (Senecioneae); 2. *Trioza hastata* group including some species referred to *Kuwayama* by Tuthill (1959, 1964) on *Encelia*, *Flourensia* and *Verbesina* (Heliantheae); 3. *T. berberidis* group, generally on *Berberis* (Berberidaceae), with one species on *Dendroseris* (Lactuceae). Burckhardt (1988) included *T. mutisiae* Tuthill from *Mutisia*

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(Mutisidae) in the *T. hastata* group; based on the presence of long genal processes and 1+3 apical metatibial spurs the species is transferred here to the *T. berberidis* group. During recent field surveys in Chile a somewhat similar species was discovered on *Proustia* (Mutisidae) which is described below. *Proustia* has not been previously recorded as host of Trioziidae.

MATERIAL AND METHODS

Morphological terminology follows Ossiannilsson (1992). Measurements and drawings were made from slide mounted specimens. The material is deposited in the Muséum d'histoire naturelle, Geneva (MHNG).

Trioza penai sp. n. (Figs 1-11)

Description. Adult. Coloration. Brown to dark brown, vertex ochreous, genal processes greyish brown. Antennal segments 3-6 ochreous, 1, 2 and 7-10 brown or dark brown. Mesopraescutum with one, mesoscutum with four longitudinal yellowish to ochreous stripes, mesoscutellum ochreous with a brown median stripe. Thorax laterally, tibiae and basitarsi ochreous. Forewings transparent with brownish to ochreous veins, veins R and R_1 , and radular spinules dark brown, wing base whitish. Hindwings transparent. Abdominal intersegmental membranes yellowish to ochreous. Terminalia yellowish brown. Immature specimens with less expanded brown colour.

Structure. Head (Fig. 1) strongly deflexed from longitudinal axis of body, with robust, apically subacute genal processes; vertex subrectangular, with fine microsculpture and short, sparse setosity. Antennal segment 9 with long subapical seta, segment 10 with both terminal setae shorter than segment (Fig. 2). Clypeus narrowly pear-shaped, labium short. Pronotum transverse, mesopraescutum and mesoscutum of subequal median length. Metatibiae with 1 + 3 apical spurs. Forewings (Fig. 3) elongate, pointed, vein Rs short, slightly sinuous, surface spinules absent apart from base of Cu_2 , radular spinules forming narrow triangles. Lateral abdominal setae present in males on tergite 3 and in females on tergite 4 respectively.

Male proctiger (Fig. 5) strongly produced posteriorly with very long setae along hind margin.

Subgenital plate short, sparsely covered in long setae. Parameres (Fig. 6) shorter than proctiger, short and stout, weakly S-shaped, strongly indented medially along the fore margin, truncate apically forming a heavily sclerotised carina with each a small anterior and posterior point, more or less evenly covered in long setae on the inner surface. Distal segment of the aedeagus (Fig. 7) with subtriangular apical dilatation bearing short spines ventro-laterally.

Female proctiger (Fig. 4) short, with subacute, truncate apex and long setae in the middle and shorter setae dorsally. Circumanal ring oval, consisting of a double row of pores, the inner ones elongate, the outer ones oblong. Subgenital plate pointed with apical projection, sparsely covered in moderately long setae. Valvulae laterales membranous, valvulae dorsales shortly triangular, valvulae ventrales styliform bearing a pair of tubercles subapically.

Measurements in mm and ratios (3 σ , 2 ρ). Head width (HW) 0.46-0.52; antenna length (AL) 0.80-0.87; forewing length (WL) 2.50-2.92; paramere length 0.16-0.18; length of distal segment of aedeagus 0.20-0.22; female proctiger length (FP) 0.37-0.40.

Vertex length/ genal process length 1.10-1.43; AL/HW 1.60-1.87; length of apical 2 labial segments/HW 1.15-1.22; metatibial length/HW 0.90-1.02; WL/HW 5.20-5.84; WL/forewing width 2.54-2.66; male proctiger length/HW 0.47-0.50; FP/HW 0.74-0.80; FP/circumanal ring length 2.36-2.47; FP/ female subgenital plate length 1.14-1.16.

Fifth instar larva. Coloration. Cephalo-prothorax yellow with a light brown patch in the middle. Antenna light brown. Mesothorax and metathorax light brown mixed with green. Forewing-pads light brown with yellowish humeral lobes. Caudal plate green with a light brown patch in the middle. Legs light brown, tarsi black.

Structure. Body (Fig. 8) oblong-oval, dorsal surface bearing fine microsculpture and sparse short setosity. Antennae (Fig. 9) 5 to 6-segmented with rhinaria formula 3455 or 3466. Forewing pads narrowly elongate, humeral lobes moderate in size, their anterior margin level with middle of the outer eye margin. Tarsal arolium (Fig. 10) small, oval to semicircular, claws shorter than arolium. Circumanal ring (Fig. 11) small, outer ring with a single row of elongate pores. Marginal setae truncate, present in following numbers (one side only): head 26-27, postocular region 1, forewing pad 80-84, hindwing pad, 8-9, abdomen 77-78.

Measurements in mm and ratios (1 specimen).
Body length 1.96; body breadth 1.34.

Body length/breadth 1.46; caudal plate length/
breadth 0.73; caudal plate breadth/ circumanal ring
breadth 7.57; forewing-pad length/ antenna length
3.75.

Host plant. *Proustia cuneifolia* D. Don. (Asteraceae, Mutisiaeae).

Material examined. Holotype σ , Chile: V Región, Provincia San Felipe, Putaendo, 10 km N San Felipe, 32°37'S 70°42'W, 700 m, 26.xii.1993, *Proustia cuneifolia* (D. Burckhardt) (MHNG).

Paratypes. Chile: 1 σ , 7 η , same data as holotype; 1 σ , same but 17.v.1993; 1 σ , 1 η , same but El Tártaro, 25 km N San Felipe, 32°37'S 70°42'W, 1000 m, 26.xii.1993; 2 σ , 1 η , same but Provincia Petorca, km 45 on road San Felipe to Cabildo, 32°32'S 70°52'W, 900m, 26.xii.1993; 1 σ , 1 η , same but Provincia Los Andes, 25-27 km E Los Andes, 32°54'S 70°18'W, 1250 m, 31.xii.1993; 1 σ , 1 larva, same but Portillo 32°50'S 70°08'W, 1900-2100 m, 1.xii.1993; 1 σ , 1 η , 1 exuvia, IV Región, Provincia Elqui, 15-25 km S Vicuña, 30°15'S 70°40'W, 1300-1700 m, 14.xii.1993, *Proustia cuneifolia* (D. Burckhardt).

Etymology. The new species is dedicated to the late L. E. Peña, Santiago, who contributed in over

100 scientific publications to the knowledge of the Chilean insect fauna.

DISCUSSION

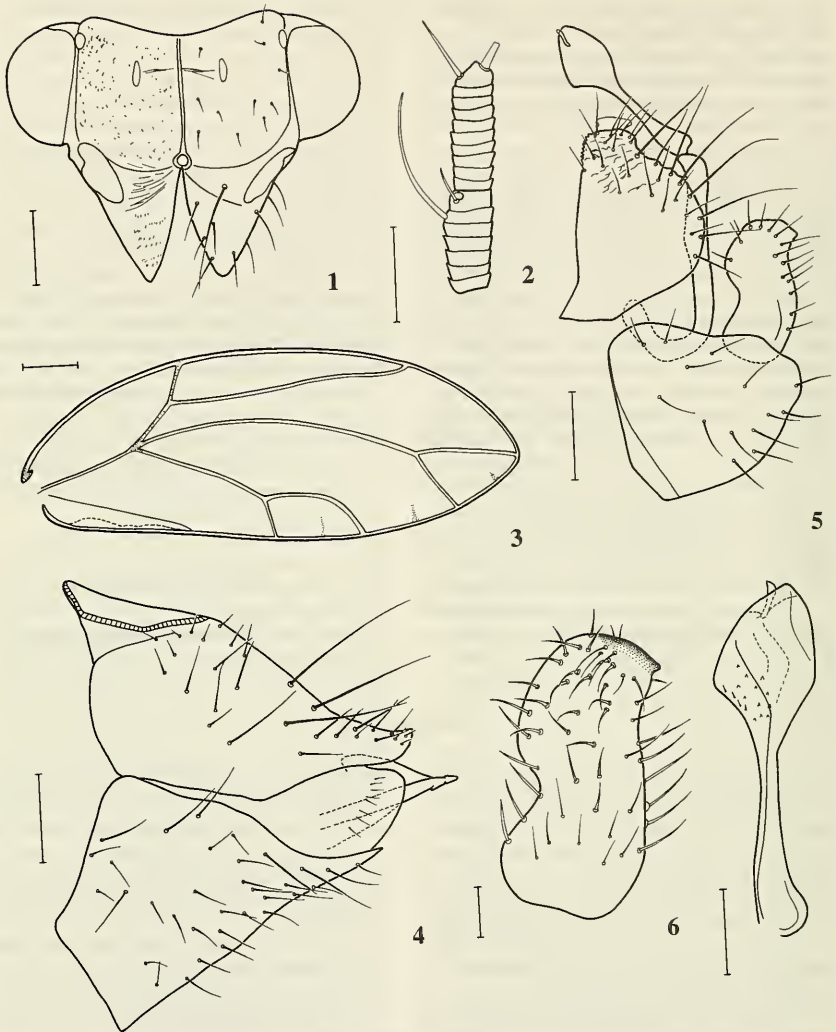
Trioza penai sp. n. falls within the *T. berberidis* group as defined by Burckhardt (1988). However, based on larval morphology (MHNG data) it is questionable whether this group is monophyletic. *T. penai* shares with *T. mutisiae* Tuthill from Peru the long genal processes, 1+3 apical metatibial spurs, similar female terminalia and the host belonging to the tribe Mutisiaeae. *T. penai* differs from *T. mutisiae* in the antennae which are less than twice head width, in the shorter vein Rs of the forewings, the posteriorly strongly produced male proctiger and the parameres which are broader and weakly S-shaped. From the other members of the *T. berberidis* group it differs in the apical dilatation of the distal segment of the aedeagus which bears small tubercles ventro-laterally.

ACKNOWLEDGMENTS

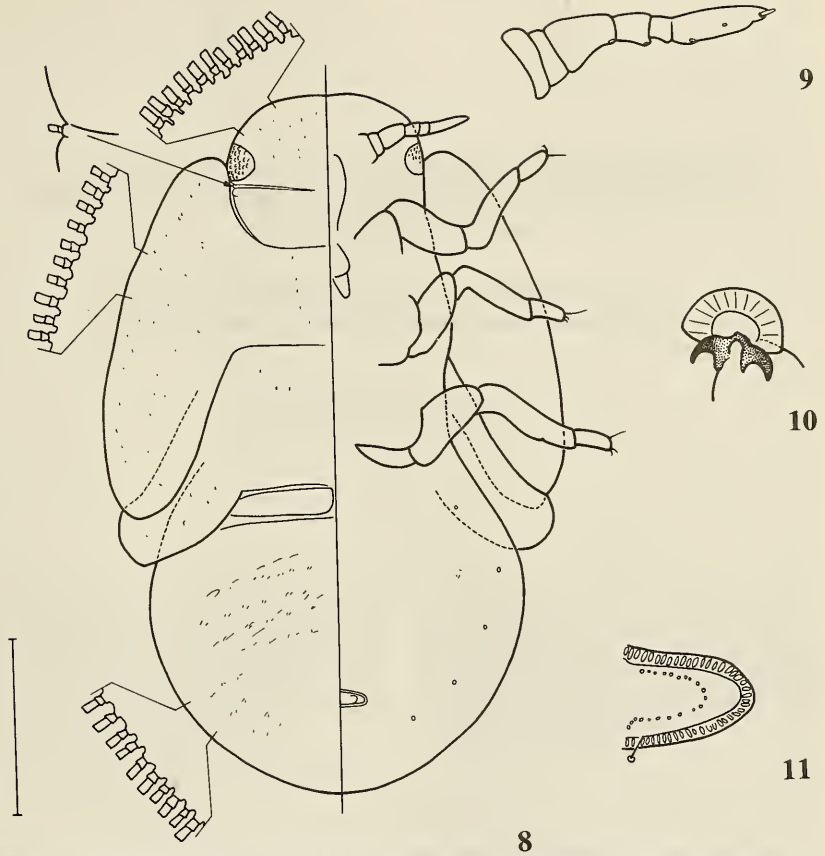
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REFERENCES

- Burckhardt, D. 1988. Jumping plant lice (Homoptera: Psylloidea) of the temperate neotropical region. Part 3: Calophyidae and Triozidae. Zool. J. Linn. Soc. 92: 115-191.
- Burckhardt, D. 1994. Generic key to Chilean jumping plant lice (Homoptera: Psylloidea) with inclusion of potential exotic pests. Revta chil. Ent. 21: 57-67.
- Burckhardt, D. and G. Couturier. 1994. The plant-louse *Leuronota calycophylli* sp. n. (Homoptera, Psylloidea), a pest on the timber species *Calycophyllum spruceanum* (Rubiaceae) in Peru. Bull. ent. Res. 84: 307-312.
- Gegechkori, A. M. and M. M. Loginova. 1990. Psillidy SSSR. Gosudarstv. Muzei Grusii, Tbilisi, 164 pp.
- Hodkinson, I. D. 1986. The psyllids (Homoptera: Psylloidea) of the Oriental Zoogeographical Region: an annotated check-list. J. nat. Hist. 20: 299-357.
- Jodkinson, I. D. 1988. The Nearctic Psylloidea (Insecta: Homoptera): an annotated check list. J. nat. Hist. 22: 1179-1243.
- Hodkinson, I. D. and J. M. White. 1986. The Neotropical Psylloidea (Homoptera: Insecta): an annotated check-list. J. nat. Hist. 15: 491-523.
- Hollis, D. 1984. Afrotropical jumping plant lice of the family Triozidae (Homoptera: Psylloidea). Bull. Br. Mus. nat. Hist. (Ent.) 49 (1): 1-102.
- Ossiannilsson, F. 1992. The Psylloidea (Homoptera) of Fennoscandia and Denmark. Fauna entomologica scand. 26: 1-346.
- Tuthill, L. D. 1952. On the Psyllidae of New Zealand (Homoptera). Pacif. Sci. 6: 83-125.
- Tuthill, L. D. 1959. Los Psyllidae del Perú Central (Insecta: Homoptera). Revta peru. Ent. agríc. 2 (2): 1-27.
- Tuthill, L. D. 1964. Conocimientos adicionales sobre los Psyllidae (Homoptera) del Perú. Revta peru. Ent. agríc. 7 (1): 25-31.
- Tuthill, L. D. and K. L. Taylor. 1955. Australian genera of the family Psyllidae (Hemiptera, Homoptera). Austr. J. Zool. 3 (2): 227-257.



FIGURES 1-7. *Trioza penai* sp. n., adult: 1, head, dorsal view; 2, antennal segments 9 and 10; 3, forewing; 4, female terminalia, in profile; 5, male terminalia, in profile; 6, paramere, inner surface; 7, distal segment of aedeagus. Scale bars 1, 4, 5 = 0.1 mm, 2, 7 = 0.05 mm, 3 = 0.3 mm, 6 = 0.03 mm.



FIGURES 8-11. *Trioza penai* sp. n., fifth instar larva: 8, left dorsal, right ventral face; 9, antenna; 10, tarsal apex with arolium; 11, circumanal ring. Scale bar = 0.5 mm.